

Environmental Assessment

**Farm Service Supply Enterprise
American Cyanamid Co.**

in

Ukraine

Under the auspices of

**Citizens Network for Foreign Affairs, Kiev, Ukraine
and the
United States Agency for International Development**

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Agribusiness Partnerships II Project

by

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(1) SUMMARY

The objective of this supplemental Environmental Assessment is to bring American Cyanamid's Farm Service Supply Enterprise, Ukraine into compliance with current and planned environmental regulations of Ukraine, Belarus and Moldova and pertinent regulations of the United States Agency for International Development, 22 CFR Regulation 216. This supplement is based on the Initial Environmental Evaluation, Scope of Work for Environmental Assessment, various CNFA/USAID reports and memorandums, inspection trips to five warehouses and on local authorities inspection reports.

American Cyanamid company manufactures, sells and distributes agricultural chemicals and other products and has operated in the Western Newly Independent States (WNIS) for the past five years. In the past, American Cyanamid sold crop protection chemicals in Ukraine through prepayments with a secured line of credit to the Ministry of Agriculture, which served as

the central supply and distribution service for crop protection chemicals in the country. Since 1996, with the establishment of private crop protection distributors, American Cyanamid extended credit through a number of private and former government sales and service businesses in which general acceptance of future crops is used as collateral for the products sold. In Ukraine, American Cyanamid is working primarily with three distributors, including the central government purchasing agent, Ukragrokhim, and two other large private firms, RISE-Invest and UkraAgrobusiness. Together they distribute approximately 80% of all crop protection products to 10,000 large collective farms in Ukraine. During the past five years yearly sales of crop protection chemicals have increased to \$4 million.

Through the development contract with CNFA, American Cyanamid will expand its operations to include 15 or more private sales and service businesses in the WNIS in 8 Oblasts in Ukraine, plus Moldova and Belarus. These businesses are currently struggling to establish a position in the marketplace, and are a necessary basis for the development of a competitive and sustainable private product distribution system. They have minimal assets as witnessed by the general poor condition of their chemical warehouses. This places a special environmental challenge on American Cyanamid in terms of assuring that their agrochemicals are secure and do not place a threat against the environment due to a poor infrastructure. Means to assure safe management are a primary theme of this environmental assessment.

The Initial Environmental Evaluation required an Environmental Assessment for: a) the operation of a farm service center, b) storage and handling of input supplies, c) the training and use of crop protection products and d) the development of a private input distribution network.

By March, 1997, when CNFA hired an environmental officer to assess each sub project and complete environmental assessments, American Cyanamid had already chosen its partner warehouses. With warehouses spread over Ukraine, Moldova and Belarus, it was not possible to visit each site. In particular at Belarus, we were advised to not enter the country due to social unrest and other uncertainties. Five warehouses were visited, and although that is admittedly not sufficient, American Cyanamid carried out a site by site cursory analysis on their own volition and provided the information to CNFA. Our purpose here is to present a general overview of the needs for agrochemical warehousing, and to assess each site with the data at hand for strengths and needs with regards to specific warehouse standards established in the United States. The mitigation package listed below therefore starts out with a discussion of general requirements, and proceeds to a site by site assessment listing the needs per property to which we strongly recommend that American Cyanamid help their partners comply with the basic management need for environmental protection.

1.1 Status of Environmental Assessment Process:

The Initial Environmental Evaluation for the American Cyanamid dated January 24, 1997

was written by Keith Drazek, Citizens Network for Foreign Affairs (CNFA) and Ken Lyvers USAID/Kiev with a Positive Determination. The IEE was approved by the Director of USAID and ENI Environmental Coordinator March 4, 1997. The contract was signed on May 20, 1997. A Scope of Work (Appendix A) was written by Mark Mitchell, former CNFA Environmental Advisor. This was submitted to USAID, but no documentation exists as to authorization by AID.

1.2 Mitigations and Recommendations

In former Soviet times, agrochemical warehouse storage facilities were designed to safely handle their contained products. The warehouses were well isolated from residential buildings, generally a minimum of 2.5 kilometers, were usually serviced by rail and/or fairly good highways, had sufficient firefighting reservoirs and other fire control facilities, were located away from sources of water, especially streams, ponds and lakes, ably equipped with electricity and transportation and were secure. Since the dissolution of the Soviet system in 1991, the infrastructure rapidly crumbled in all warehouses in the CIS. Maintenance was not a part of management since no funds were available. Many of them are now completely unsafe for the storage of any toxic substances, but continue to be used at a low rate, generally 8-10% of capacity, which incidentally is the current rate of the economy. Employees have not been paid properly for more than a year in some facilities, fire control is nonexistent, warning signs are worn out, security systems are relatively useless, and the system is in disarray.

American Cyanamid has made some progress in upgrading its clients warehouses, but not enough. At some warehouses, paving or asphaltting of the interiors and exterior patios has occurred, roofs and ventilation have been improved etc. Since such renovations cost large sums of money, one way that American Cyanamid has tried is to have several companies store chemicals under one roof and dividing rehabilitation costs. In other areas, the disrepair simply continues. A lack of decent warehousing is a major agricultural problem facing the CIS countries.

Therefore, even though American Cyanamid has reasonably good environmental policies, it is not always possible for their corporate directors to divert sufficient funds for a satisfactory level of environmental protection for their many partners. This poses a general public health and ecosystem risk which is still relatively safe because of the good aspects of the centrally directed designs in the first place.

During the EA process, CNFA environmental office submitted the Monsanto chemical warehouse analysis forms to American Cyanamid to complete for each of their 15 warehouses. The Company complied with this request and the detailed analyses are included as Appendix F and constitute the basis for mitigation recommendations for each site.

One way to reduce the hazard is careful and professional emphasis in American Cyanamid training programs to assure that pesticides are managed in a safe and rational manner,

including integrated pest management. This mitigation is discussed in the following section in detail.

This is the fifth EA in the Agri Business Partnership Projects regarding pesticide storage and distribution. It is important to emphasize that no pesticides will be purchased with USAID funds by American Cyanamid or their partners. Nevertheless, the normal toxicity analysis for the American Cyanamid inventory is included in the EA. In addition, further guidelines are included as appendices to this report including the environmental health and safety plan of American Cyanamid.

The following list of mitigations is a reiteration of AID requirements, and interpretations of American Cyanamid own reports provided to us during this assessment about individual warehouse sites.

A. Monitoring Program. A constant monitoring of progress made in complying with the Mitigations described in this EA and improving the situation at all warehouses is necessary. The first and most important mitigation measure in this EA is to require American Cyanamid to adequately report on the state of its warehouses on a quarterly basis with respect to compliance with general management requirements of USAID, of standard guides for warehouse safety (attached as one reasonable management program), and to periodically describe their needs and the needs of their partners based on their own analyses of each warehouse site. The CNFA environmental officer will verify compliance through periodic inspections of sites, reading the quarterly reports of American cyanamid and reporting to USAID quarterly as to progress. Thus, adjustments in mitigations can be made as the project progresses.

B. American Cyanamid must follow the USAID guidelines for chemical warehouse management as listed in Tables 1 and 2 and in addition, the lists attached as appendix F. American Cyanamid own program is quite similar to these requirements and for the most part is being followed or developed.

Table 1. USAID Recommendations for Pesticide Storage
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- | |
|--|
| <ol style="list-style-type: none"> 1. Be located in an area far away from dwellings and surface water and not subject to flooding or shallow water tables. 2. Be shaded if possible to help regulate temperature in the warehouse. 3. Be fenced, locked, and posted with warning signs. 4. Be built of nonflammable materials. 5. Have floors of smooth concrete or other impervious material, so |
|--|

- that pesticides will not be absorbed.
- 6. Be well ventilated, to avoid buildup of heat and fumes.
- 7. Be surrounded by containment structures (ditches, berms, etc.) to prevent spills from flowing off-site.
- 8. Be well lit.
- 9. Have posted spill management instructions, spill containment and safety supplies (e.g., shovels, sand, brooms, hoses, fire extinguishers), and a water source for spill decontamination.
- 10. Use a “first in, first out” procedure is followed.
- 11. Store individual chemicals separately, and on wooden pallets.
- 12. Maintain aisles so that all chemicals are accessible.
- 13. Prohibit the storage or consumption of food, tobacco, or drinking water in the warehouse.
- 14. Make a supply of soap and water for washing available in the warehouse.

Source: USAID 1991

Table 2. USAID Recommendations for Pesticide Application

- 1. The label should be written in the local language.
- 2. The applicator should follow the directions on the label, including the use of protective clothing and respirator.
- 3. Never leave pesticides unattended in an unsecured place.
- 4. Never transfer pesticides to containers other than those designed to hold that pesticide.
- 5. Never work alone with pesticides.
- 6. Inspect containers for leaks before moving.
- 7. Keep food, drink, tobacco, and eating utensils away from the work area.
- 8. Never eat, drink, smoke, or rub your eyes when handling pesticides.
- 9. Always have soap and plenty of water available at the work site.

10. Thoroughly wash protective clothing after handling pesticides, separate from other clothing.
11. Dispose of any heavily contaminated clothing.
12. Workers should immediately stop work and wash if pesticide spills on them.
13. Keep unauthorized persons, especially children, away from pesticides.

Source: USAID 1991

C. General Mitigation Package applied to all AP-2 Agrochemical Warehouses.

A) The project should maintain a qualified pesticide management specialist in the field

The training of distributors, farmers and others in the correct disposal techniques of pesticide packaging is a mitigation for the use of pesticides. As long as the project supplies, uses, or recommends the use of pesticides, all of its pest and pesticide management activities must remain under the supervision of a qualified individual. All pesticides that leave the warehouse should have Russian and/or Ukrainian language brochures specific to the product; or all containers should have translated labels on them.

B) Water from nearby wells should be monitored for the presence of pesticides

Water from the wells in the vicinity of chemical warehouses and on key locations on the farms in the project are tested periodically by the government, but not specifically for pesticide content. Such testing should be conducted as soon as possible to establish a baseline data on existing pesticide levels. Groundwater should be monitored through boreholes, at least once a year, to detect any possible leaching of pesticides. Samples from these bore holes should be analyzed for pesticides and synthetic chemicals to identify point source leakage.

C) An emergency preparedness plan should be developed

A plan should be made for run off catchment and disposal after accidental releases. Standardized data sheets should be supplied to the fire fighting personnel and every purchaser or user of chemicals as well as medical providers. The emergency preparedness plan should also include an account of the locally specific conditions that will be required to successfully extinguish a fire event with a chemical fuel base. This must include a description of the local emergency response time to the American Cyanamid site, as well as the measures that can be taken to ensure that no contamination of the area's prime drinking water facility can take place.

D) Pesticide Container Management Plan

Empty and improperly discarded pesticide containers represent a significant and present danger to the environment and human health. Empty pesticide containers are so popular for recycling as containers for various substances in Ukraine, including food, that they have actually become targets of theft from organized crime. Empty pesticide containers are notorious sources for poisonings, especially among children and alcoholics. This real problem must be resolved, and it is the obligation of the seller of the pesticides, e.g., American Cyanamid Company and its distributors to formulate a management plan to reduce the risk of accidental poisonings. The current American Cyanamid activity of training on safe pesticide management must include instructions on the proper disposal of the containers. American Cyanamid should verify their success in training by interviewing farmers about how they are actually progressing with proper container disposal after every harvest cycle. In the Progressive Genetics Project of AP-1, seed bags are sold to the buyers of the seed, and then repurchased by Progressive Genetics for reuse the next season. About a 50% return rate is realized, resulting in substantial savings. A similar program is recommended for American Cyanamid activities.

E) Resales of Unused Pesticides

It is commonly revealed upon discussions with interested parties in the farming community that many collective farms frequently buy more pesticides than they can directly use during the growing season, and then sell remaining stocks to "private farmers." The collectives can sell at below cost since their funds or bartering arrangements have already been paid for by the centralized system. This directly implies that American Cyanamid is losing potential future sales to private farmers. It also directly implies that pesticides will be poured from their original and properly labeled containers into unlabeled and unsuitable jars, bottles, tins and other containers such as vodka bottles, baby food jars, milk cartons, etc. This practice, although not the direct responsibility of American Cyanamid, should be addressed by the company. One recommended practice is that the Am Cyanamid distributors should provide technical assistance to the farm to assure that the proper amounts of pesticides are sold to only cover the particular lands to be treated. Perhaps inquiries during its field days etc. about second sales, and then provide the collective farms with extra labels and brochures, and even original empty containers. Although this is not American Cyanamid's fault, their chemicals will be a source of ecosystem pollution and public health jeopardy if the practice continues. This is particularly acute with those compounds known to be oncogenic or carcinogenic. American Cyanamid should take a proactive role in universal safe use of pesticides in Ukraine.

D. Specific Site Mitigations

American Cyanamid performed inspections for all of its warehouses and those of its' partners and completed the assessment based on Monsanto's criteria sent to them by CNAF Environmental

office. Monsanto's criteria are general guidelines and are chosen here simply because Monsanto is also a member of the AP-2 community of subgrantees.

The following sections A through C describe each of the 3 warehouses visited by the environmental team of CNFA and lists specific needs to bring the warehouses up to minimum standards for environmental safety. Such analysis should also apply to the other warehouses. Map 1 shows the general areas of the sites. As other sites are chosen, the above mitigations in Table 1 and 2 apply.

a) at Chisinau-Vitol, Moldova:

The warehouse needs upgrading because:

- there are inadequate warning signs at the facility; **Recommendation** - install signs
- there is a lack of fire fighting equipment even though there is a reservoir;
Recommendation - purchase and install fire extinguishers, pile sand and shovels at key locations, preferably in each bay, and probably neutralizing soda;
- there are no protective clothing nor masks; **Recommendation** - provide and train workers on proper use
- the washing machine does not work; **Recommendations** - fix it and provide proper soap .
- the guards are sleeping too near the pesticides without adequate ventilation;
Recommendation - ventilate better, move sleeping quarters.
- the doors need to be sealed better; **Recommendation** - install rubber or other corrective seals
- berms need to be installed at the doors to prevent any spillage from seepage outside;
- the cement floor in which American Cyanamid is storing chemicals is spongy, and appears to be soaked with pesticides from previous users creating an unsatisfactory odor problem.
The **floors of the rooms being used need to be capped** with a layer of cement or other impervious material and sealed;
- the warehouse is fitted with ventilation vents in the roof, but they are inadequate to circulate the air satisfactorily; **Recommendation** - upgrade the system
- an emergency contingency plan for the warehouse needs to be posted with easy access and availability to all personnel. The **workers need to be trained** in proper emergency action. The emergency contingency plan must contain a section on how to **alert the neighbors in case of fires**
- the personnel need training on pesticide safe management and handling
- drainage, lighting, and security appear to be adequate.

A letter was drafted to the environmental officer of American Cyanamid by the CNFA

environmental officer upon the request of Tivol to help them with this mitigation package, but were informed that no funds were available for this task.

b) at Donetsk, Ukraine:

- the outer patio is inadequate; **Recommendation** - seal it with asphalt
- the door seals need to be upgraded; **Recommendation** - Install new and proper seals
- berms need to be installed at the doors; **Recommendation** - construct berms
- warning signs, firefighting equipment and protective clothing and masks need to be provided; install new signs
- an **emergency response plan needs to be posted and available to all personnel**; **Recommendation** - distribute and post emergency response plan.
- **spills need to be tended to immediately**;
- the ventilation system is inadequate due to odors; **Recommendation** - improve system
- the Oblagrochim warehouse next door suffered from a severe odor problem, and needs ventilators; **Recommendation** - switch on the air evacuation system more frequently to reduce odor .
- the Director of the Donetsk facility also mentioned problems with security in the area. **Recommendation**- American Cyanamid should be proactive in providing technical assistance to their neighbors in the pesticide storage complex regarding the availability of equipment, especially for ventilation and mutual security.

c) at Brailov, Vinnytskaya Oblast, Ukraine:

- there are no protective clothing or masks; **Recommendation** - provide them to employees and teach them how to use the equipment.
- the road is inadequate for large, heavy truck use; **Recommendation** - begin dialogue with rayon administrator to extend nearby road upgrading to the complex. The road presents a hazard for the transport of toxic substances through several villages.
- since the break up of the former Soviet Union in 1991, no samples of air, water, soil have been taken and analyzed for the presence of pesticides; **Recommendation** - begin monitoring;
- there was no completed sewerage-disposal system; **Recommendation** - investigate needed improvements and report in quarterly report about progress.
- Bad odor; **Recommendation** - **switch on the air evacuation system more frequently** to reduce odor ;
- insufficient warning signs about smoking and inflammability; **Recommendation** - more warning signs
- an **emergency preparedness plan** was not observed, posted where it was readily visible; **Recommendation** - post the plan in a readily visible location.

(2) PURPOSE

The propose of this project is to create a competitive distribution system by giving smaller, newer businesses access to products and credit facilities. Product stewardship seminars will be conducted for distributor field employees, business management seminars will be conducted for distributors, demonstration trials for proper use of products and application methods, U.S. trips to review distribution systems, and an equipment demonstration program will be implemented.

(3) DESCRIPTION of the PROJECT

This section describes the current situation for each of the warehouses of American Cyanamid's partners following completion of the Monsanto guide for chemical warehouse management. Most of the warehouses also have photographs attached in Appendix C

3.1 Building Sites and Site Accesses

3.1.1 Brailiv, Vinnytskaya Oblast, Ukraine

The warehouse is a state collective storage unit with Ukragrochim in charge. Built in 1984, the warehouse has been the model for warehouses in other parts of the Soviet ex-bloc countries; i.e. Moldava and Uzbekistan. The Moldovan warehouse in Camrat is under consideration as an AP-2 Farm Service Center to be operated by a newly forming private company named Cradi-C working with Bayer, and possibly WestNIS and Cargill.

The Brailiv warehouse is situated on a 17 - 19 ha parcel and has a storage capacity of 8000 tons. The facility is a set of twin buildings. Each building is large with an approximate space of 15,000 square meters. Each building is split by a railway spur entryway servicing two buildings, each with six bays protected by large steel doors. A complex ventilation system is intact and in operating condition. Unit One is now holding 1000 tons of pesticides from various companies including AgroEvo, American Cyanamid, Bayer, and Sumitomo (Tarta Super). Solids and liquids are stored separately and all are on wooden pallets in holding rooms with newly asphalted floors. American Cyanamid has on stock Fastak insecticide, Stomp herbicide, Storm rodenticide and Acrobat fungicide.

Firefighting equipment consists of an overhead sprinkler system and fire hoses. Hose spigots are every 15 feet, but most of the spigots are rusted and only a few have hoses. These are an important part of firefighting and washing down chemical spills and therefore should be maintained properly. An overhead sprinkler system is checked once a year. It is designed to activate at 70° C. The community firefighting equipment is 2 ½ km from the warehouse. The warehouse itself has a large fleet of firefighting trucks, most of which are in disrepair and up on

blocks. There are 4 fire extinguishing agents on stock, including foam, carbolic acid and carbon dioxide. No sand piles or agents for absorbing spills were observed. Several medium sized portable fire extinguishers were readily available. There is a large underground water reservoir for fire fighting. The warehouses are heated and the boiler burns mazut.

Warehouse security appears adequate. The facility is surrounded by a cement prefab and chain link fencing with wire on the top. There is a chain link gate at the front gate which can be locked. All the doors which store chemicals are under at least 2 locks and need 1- 2 men to open and close the heavy metal doors.

All employees have had special training in the correct storage of the pesticides. This training and instruction is done on a daily basis. They use protective clothing, although none was in use nor visible during the site visit. The ventilation of the buildings is more than adequate but only works as intended if the system is turned on, which it was not. The odors of pesticides was readily apparent and irritating but not overpowering to a point of panic.

Site Access

All pesticides are transported in and out by road. The road is inadequate for large, heavy truck use. It is a narrow, dirt and asphalt track with large potholes and poor drainage. The houses are built close to the road with little frontage for passing or protection. The railroad runs adjacent to the outside fence of the warehouse. Each warehouse unit has its own system of spur rails running from the main track into the warehouse property to both buildings. The use of rail traffic is discontinued due to the irregularities of scheduling of the railroads. American Cyanamid brings in their pesticides only by truck. The road from the highway is inadequate for this purpose. The pesticides are all shipped overland from Italy, France, Germany, etc. which generates more hazards from the generally poor road conditions.

Samples of air, water and soil were routinely taken before the breakup of the former Soviet Union in 1991. Since then, no samples have been taken. There are plans to begin sampling again by American Cyanamid. Ideally, the staff of the warehouse would like to work without the middle man of Ukragrochim. The extra storage buildings not in use would provide extra income for the warehouse if they were to lease out space for fertilizer storage. However, it was stated that pesticides are preferred since Ukrainian fertilizers are poorly packaged and leakage and spillage is common. United States fertilizers are considered to be too expensive and can not be purchased. At this point, Ukragrochim has the final say on the storage of fertilizers. There is no disposal site on the property for used or damaged containers nor for disposal of spilled chemicals.

In one storage bay rented by a Japanese company, there was a pile of a dozen 5-gallon damaged tins with contents partially spilled on the floor with chemicals of Class 2, highly toxic substances (see photo album). As the empty tins were damaged in transit, this material was to be disposed of

by returning to the manufacturer. This means that highly toxic substances would need to be repackaged and shipped back over the substandard road. The Director feels that, because of the low use of the facilities at this time, there are few contamination problems. He stated that he didn't have much preoccupation with contamination since the general environment was already badly contaminated. Another system of accountability of damage is needed. Perhaps photographs similar to the ones taken (Appendix C) of the damaged containers would suffice and prevent such questionable accounting practices.

The electricity for the facility comes from the central generating station for which they pay a usage fee.

This warehouse is an example of a correctly designed building for storage and security of pesticides. The floors are designed to prevent flow of liquids out of the bays. Berms are in strategic places and water storage is adequate. The on-site sewage disposal system has not been completed and is thus unusable. The Moldovan warehouse twin also has an identical sewer-disposal system that has not been completed. With the exception of the spilled containers, this is one of the cleanest pesticide warehouses viewed so far. The air evacuation system should be switched on more frequently to reduce odor. Orders are down at this point in time for pesticides. The lack of credit and cash flow is significantly stifling pesticide use in Ukraine. There is a computer in use for the accounting. Computers were not visible in the directors office, that of his secretary, nor of any of the offices we passed that had their doors open.

Although there were some warning signs, more warning signs about smoking and flammability are needed. An emergency preparedness plan was not observed posted anywhere that was readily visible. This needs to be done.

3.1.2 Pesticide Warehouse in Donetsk Oblast, Ukraine

The warehouse is located in Andreevka Village Tel'manovsky District of the Donetsk Oblast. Pesticides occupy only about 1/16th of the warehouse at this time with only two kinds of pesticides, a fungicide and an insecticide, being stored. The pesticides were stacked correctly on wooden palates and no spills were noticed, although there was some old debris laying around in one corner. The rubber seals on the large doors ranged from good to poor condition to non-existent, depending on the door. Air spaces were visible beneath the doors, and berms would be necessary at the entryways to prevent the flow or movement of pesticides from the interior of the warehouse to the exterior. Correct grading on the loading docks toward the interior of the building to prevent the escape of toxic materials to the outer environment, especially the soil, is also necessary, but may already be within the warehouse design. The patio around the outside warehouse was dirt, with both insufficient drainage and impermeable cover materials needed to prevent excessive mud or seepage of toxins into the earth should spills occur. No warning signs about flammability of stored substances were visible.

The warehouse is part of a larger agrochemical complex of Ukragrochim. This complex is about 22 years old, and established during Soviet times. It is ideally situated being remote from villages. One km away is a small group of houses. The warehouse is next to a railroad line and near the highway. It lies in the center of large agricultural fields, and is about 2 km from the nearest stream, which may be intermittent. A storage reservoir for disposal of pesticides and wastes was in place. No wells are located on the premises. The warehouse has good structural integrity, although is a bit dilapidated, as is the rest of the complex. Old fuel or fertilizer tanks are adjacent to the warehouse. A suitable fence and walls surround the complex. The newly privatized Ukragrochim is rehabilitating the facility.

Certain precautions need to be implemented immediately to prevent spills, mitigate accidents, and comply with environmental standards. The condition of the dirt road from the highway to the warehouse complex is in poor condition which would encourage accidental spills. The road is about 1 km in length, and at the head of the road a sewer system was under construction. The sewer contractor should grade out the road. The director of the warehouse did not seem to think that was possible. A fairly large pile (about 50-60 kilograms) of an unknown white granular substance, possibly fertilizer or pesticide, was on the outer perimeter of the road directly at the warehouse entrance. Correct and immediate disposal of the substance is mandated.

The Director was proud the security system which was in place. There were no warning signs posted on the exterior and interior of the warehouses. Such signs must be mandatory in all continued American Cyanamid-USAID-CNFA projects in pesticide warehouses. The warning signs are described in further detail in Section 4.1 (pg 18) of the EA.

3.1.3 Vitol Company, Moldova

The company is one of the branches of "Triada Corporation", which also includes, "Triada Real Estate", "Triada Construction", Joint Venture "Aroma-Plus" (wine products and cognac production), and "Opal-P"(a network of custom warehouses). The Vitol Company deals with pesticides supplies to Moldovan farms. The farms pay for the chemicals with produce: grain, wine, fruits, vegetables etc. The marketing departments of Vitol or Triada Corporation deal with turning those commodities into money to pay back chemical companies. For the 1996 year, the company has signed contracts with:

American Cyanamid (\$300,000) - 30% down payment, 180 days commodity credit, and
Bayer (\$500,000) - 180 days commodity credit.

In Russia, Vitol is also producing two of their own brands of fungicides for vines: "Efali" and "Aliuvit".

The major area of business is orchard pesticides. Orhei Cannery, one of the largest partners, is where Vitol can process the barter system of payment production for further marketing. Vitol rents a chemical storage warehouse (350 tons capacity) from Scientific-Industrial Association of Horticulture "Codru", located in a suburb of Chisinau. This is the only custom warehouse in Moldova, and probably the best one, although it is not heated, and does not meet all the USAID requirements for chemical storage warehouse.

Vitol would like to upgrade the warehouse storage to meet international standards, thereby attracting more chemical companies, and providing them with a full range of services such as custom-consignment warehousing.

3.1.4 Chisinau-Tivol Agrochemical Warehouse, Moldova

This warehouse is on the outskirts of Chisinau in an agricultural district, and is one of American Cyanamid's Farm Service Centers in the AP - I project. The warehouse needs upgrading and the personnel need training on pesticide safe management and handling. Fire extinguishers are needed immediately as is an emergency contingency plan to alert the neighbors in case of fires. It is not known if the warehouse has been inspected and is in compliance with the laws governing the environmental protection policies of Moldova.

The warehouse security appears adequate. The facility is surrounded by a cement prefab and chain link fencing with wire on top. All the doors which store chemicals are under at least 2 locks and need 1- 2 men to open and close the heavy metal doors.

The warehouse has been inspected in order to bring into compliance with the laws governing the environmental protection policies of Moldova. Water is supplied from the Municipal water system. The water has not been tested for cleanliness. The facility has fire reservoirs in case of fire. The warehouse is not equipped with an automatic fire control system. There are two fire exits ensuring quick evacuation of personnel. The facility is equipped with emergency lighting.

Renovation of the warehouse will bring benefits both to Moldovan Agricultural producers and Western Chemical Companies, who are concerned with the safety of their products during the long term storage.

3.1.5 American Cyanamid's Five Warehouses

American Cyanamid is working with UkrAgroBusiness on a consignment basis of licensed warehouse agreements. These warehouses are the former state collective storage units with former AgroChem in charge. After the collapse of the Soviet Union, all AgroChems were transformed into joint stock companies (JSC). UkrAgroBusiness, one of the biggest distributors in Ukraine, rents former AgroChem warehouses over Ukraine for storage. American Cyanamid has 5 such warehouses located in Nemirov (Vinnytsia oblast), Nikolaev, Kherson, Lviv, and Kharkiv.

3.1.5(a) Vinnytsia Branch of JV JSC “UkrAgroBusiness” Nemirovskiy District Agricultural Chemistry, Ukraine

This UkrAgroBusiness warehouse is located in the town of Nemirov, Vinnytsia oblast. The warehouse was built in 1979 during Soviet times and belonged to Ukragrochim. The building is 550 sq m. This warehouse now holds 450 tons of solid and liquid pesticides. All the pesticides are transported to and from the warehouse by railway and road.

The warehouse has been inspected and is in compliance with the laws governing the environmental protection policies of Ukraine. A local gas boiler house is used for heating. Drinking water is provided from the municipal water supply. There is no information concerning the quality of the water. The warehouse is not equipped with an automatic fire control system but has a fire reservoir of 75 m³ in case of fire.

The warehouse is next to the railroad and near the highway; both are in good condition. The warehouse lies in the center of large agricultural fields and is about 10 km from the nearest stream. A storage reservoir for disposal of pesticides and wastes is in place. No wells are located on the premises. The facility is surrounded by a cement prefab fence. There is sufficient lighting properly positioned. Solid and liquid pesticides are stored separately. The warehouse is divided into separate storage bays. The nearest town is 2 km from the site. The warehouse is not visible from the town. The security at the warehouse is adequate against arson and burglary.

3.1.5(b) Nikolaev Branch of JV JSC “UkrAgroBusiness” in Yasnaya Zorya, Nikolaevskiy District, Ukraine

This warehouse is located in Yasnaya Zorya, Nikolaevskiy Oblast, Ukraine. The warehouse was built in 1967 during Soviet times. The building is 900 sq m. The warehouse now holds 600 tons of liquid and solid pesticides. All the pesticides are transported to and from the warehouse by railway and road.

The warehouse has been inspected and complies with the laws of Ukraine governing the environmental protection policies. The city electrical system is used for heating. The facility has a water pump in case of fire. The warehouse is not equipped with an automatic fire control system. The warehouse is next to a railroad and near the highway; both are in good condition. The warehouse lies in the center of large agricultural fields, and is about 19 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is in place. No wells are located on the premises. The warehouse has good structural integrity. The facility is surrounded

by a cement prefab fence. There is sufficient lighting properly positioned. Solid and liquid pesticides are stored separately. The warehouse is divided into separate storage bays. The nearest town is 10 km from the site and the warehouse is not visible from the town. The security is adequate against arson and burglary.

3.1.5(c) Kherson Branch of JV JSC “UkrAgroBusiness” in Srochnyy, Belozerskaya Inter-Regional Warehouse of Chemicals Deliveries, Ukraine

The warehouse is located in Srochnyy, Kherson Oblast, Ukraine. The warehouse was built in 1980 during Soviet times and belonged to Ukragrochim. The building is 180 sq m. This warehouse now holds 90 tons of liquid and solid pesticides. All the pesticide are transported to and from the warehouse by road. The road, which is in satisfactory condition, goes directly to the grounds of the warehouse.

The warehouse has been inspected and is in compliance with the laws of Ukraine governing the environmental protection policies. The warehouse has no heating system. The warehouse is not equipped with an automatic fire control system but has a fire ditch. The warehouse lies in the center of large agricultural fields and is about 15 km from the nearest stream. There is a storage reservoir for the disposal of pesticides and wastes. No wells are located on the premises. The facility is surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. Solid and liquid pesticides are stored separately. The warehouse is divided into separate storage bays. The nearest town is 7 km from the site. The warehouse is visible from the town and has adequate security against arson and burglary.

3.1.5(d) Lviv Branch of JV JSC “UkrAgroBusiness”, Ukraine

The warehouse is located in Lviv. The warehouse was built in 1975 during Soviet times and belonged to Ukragrochim. The building is 300 sq m. This warehouse now holds 250 tons of liquid and solid pesticides. All the pesticide are transported to and from the warehouse. The road goes directly to the grounds of the warehouse.

The warehouse has been inspected and is in compliance with the laws governing the environmental protection policies of Ukraine. There is a centralized heating system. The drinking water has been tested and its quality is in compliance with health standards. The facility has a fire reservoir in case of fire however, the warehouse is not equipped with an automatic fire control system. Personnel are trained in fire-fighting. The warehouse has a fire plan showing positions of all fire fighting equipment. There are enough fire exits to ensure rapid evacuation of personnel.

The nearest living area is five and a half km away. The warehouse is next to railroad and near the highway. Both are in good condition. The warehouse lies in the center of large agricultural fields and is about 10 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is in place. No wells are located on the premises. The facility is surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. Solid and liquid pesticides are stored separately. The warehouse is divided into separate storage bays. The warehouse is not visible from the town and has adequate precautions against arson and burglary.

3.1.5(e) Kharkiv Branch of JSC “UkrAgroBusiness” in Nova Vologda, Kharkiv Oblast, Ukraine

The warehouse is located in Nova Vologda and was built during Soviet times in 1975. The building is 595 sq m. This warehouse now holds 500 tons of liquid and solid pesticides. All the pesticides are transported to and from the warehouse by railway and road. The railway goes directly to the grounds of the warehouse.

The warehouse has been inspected and is in compliance with the laws governing the environmental protection policies of Ukraine. The warehouse is provided with an industrial water supply system. The well is 300 m from the facility. There is no information concerning the results of water quality tests. The facility has a hydrant and fire reservoirs in case of fire. The warehouse is equipped with an automatic fire control system (595.3 sq m.). And personnel are trained in fire-fighting. The warehouse has a fire plan showing the placement of all fire fighting equipment. There are enough fire exits to ensure rapid evacuation of personnel.

The warehouse is next to a railroad and near the highway; both are in good condition. The warehouse lies in the center of large agricultural fields, and is about 5 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is in place. No wells are located on the premises. The facility is surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. Solid and liquid pesticides are stored separately. The warehouse is divided into separate storage bays. The nearest town is 1.5 km from the site. The warehouse is visible from the town and the warehouse has adequate security against arson and burglary.

3.1.6 JSC “Mais Inc” in Uman, Cherkassy Oblast, Ukraine

The warehouse is located in Uman, Cherkassy Oblast, Ukraine. The warehouse was built in 1974 during Soviet times and belonged to Ukragrochim. The building is 2,150 sq m. This warehouse now holds 2,500 tons of liquid and solid pesticides and are stored separately. All the pesticide are transported to and from the warehouse by rail and road. The railway goes directly to the grounds of the warehouse.

The warehouse is in compliance with the laws of Ukraine governing the environmental protection policies. The warehouse has drinking water, however, there is no information concerning the quality of the water. The warehouse is not equipped with an automatic fire control system but does have a local pump in case of fire and personnel are trained in fire fighting. The warehouse has a fire plan showing the placement of all fire fighting equipment. There are enough fire exits to ensure rapid evacuation of personnel.

The site is remote from villages with the nearest group of houses being seven km away. It lies in the center of large agricultural fields and is about 17 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is in place. No wells are located on the premises. The warehouse had good structural integrity, although a bit dilapidated. The facility is surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. The warehouse is divided into separate storage bays. It is not visible from the town. The warehouse

has adequate security against arson and burglary.

3.1.7 JSC “Fertilitatya-Chisinau” in Orhey, Moldova

The warehouse is located in Orhey, Moldova. The warehouse was built during Soviet times in 1989. The building is 912 sq m. This warehouse now has 70 tons of liquid and solid pesticides and are stored separately. All the pesticides are transported to and from the warehouse by a road which is in satisfactory condition.

The warehouse has been inspected and is in compliance with the laws governing the environmental protection policies of Moldova. The warehouse is provided with drinking water from the municipal water supply. The water has been tested with positive results for water quality. The facility has a centralized water supply and reservoirs in case of fire, however the warehouse is not equipped with an automatic fire control system. Personnel are trained in fire-fighting and the warehouse has a fire plan showing the placement of all fire fighting equipment. There are enough fire exits to ensure rapid evacuation of personnel. The warehouse lies in the center of large agricultural fields, and is about 7 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is in place. No wells are located on the premises. The warehouse has good structural integrity. The facility is not surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. The warehouse is divided into separate storage bays. The nearest town is 1 km from the site. The warehouse is not visible from the town and has adequate security against arson and burglary.

3.1.8 “Agros” Association in Prishib Village, Michailovsk’kiy District, Zaporozhzhia Oblast, Ukraine

The warehouse is located in Prishib Village, Michailovsk’kiy District, Zaporozhzhia Oblast, Ukraine. The warehouse was built during the Soviet era in 1974 and belonged to Ukragrochim. The building is 1,500 sq m. This warehouse now holds 2,000 tons of liquid and solid pesticides which are stored separately. All pesticides are transported to and from the warehouse by rail and road. The railway and road go directly to the warehouse and are in satisfactory condition. It is not known if the warehouse has been inspected and is in compliance with the laws governing environmental protection policies of Ukraine. The warehouse lies in the center of large agricultural fields, and is about 20 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is located on the premises. No wells are located on the premises. The facility is not surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. The warehouse is not divided into separate storage bays. The nearest town is 2.5 km from the site and is not visible from the town. There is adequate security against arson and burglary.

3.1.9 Closed JSC “Rise” in Radyvyliv, Ukraine

The warehouse is located in Radyvyliv, Ukraine. The warehouse was built in 1978 during the Soviet era and is 1,824 sq m. This warehouse now holds 1,500 tons of liquid and solid pesticides. All the pesticides are transported to and from the warehouse by rail and by road which are next to the warehouse. Both are in satisfactory condition. It is not known if the warehouse

has been inspected and is in compliance with laws governing the environmental protection policies of Ukraine. It lies in the center of large agricultural fields and is about 20 km from the nearest stream. A storage reservoir for the disposal of pesticides and wastes is in place. No wells are located on the premises. The warehouse has good structural integrity, although is a bit rundown.

The facility is surrounded by a cement prefab fence. The lighting is sufficient and properly positioned. Solid and liquid pesticides are stored separately, however the warehouse is not divided into separate storage bays. The nearest town is 5 km from the site and is not visible from the town. The warehouse has adequate security against arson and burglary.

3.1.10 Simferopol Rayagrochim

Simferopol Rayagrochim in Crimea is an Open Joint Stock Company in the process of privatization. They are involved in both supplying crop protection chemicals and fertilizers to farms and providing services in delivering products, as well as land tillage. Simferopol Rayagrochim has been working with American Cyanamid since 1997. American Cyanamid supplies goods on a consignment basis, as well as defers payments. Rayagrochim receives chemicals from American Cyanamid through the bonded warehouse in Zaporizhzhya and conducts customs clearance on its own. The trade turnover between Simferopol Rayagrochim and American Cyanamid was nearly \$200,00 in 1997. Such small trade turnover was caused by untimely payments and small credit resources. Four thousand tons of ammonium nitrate, 800 tons of super phosphate and a small amount of ammonium phosphate were sold in 1997.

The warehouse has a total storage capacity of 700 tons. As of March 16, 1997, it contained 200 tons of pesticides. It is not known if the warehouse has been inspected or is in compliance with the laws governing the environmental protection policies of Ukraine. The storage facility is kept in order with good standards of hygiene and appears to be well organized. The drainage system from the whole area runs into underground tanks which can be pumped out for safe disposal. The warehouse has concrete cladding to the walls and clean concrete floor. Simferopol Rayagrochim does not store fertilizers. Fertilizers are loaded directly from cars into trucks and for delivery to their customers.

3.1.11 Odessa Rayagrochim

Odessa Rayagrochim is a fully privatized enterprise with 100% of the enterprise's shares belonging to both to the city and the Oblast of Odessa, as well as to the employees. Odessa Rayagrochim is involved with the distribution of fertilizers and crop protection chemicals as well as providing various services. The trade turnover between Odessa Rayagrochim and American Cyanamid was \$180,000 during 1997. Odessa Rayagrochim has been working with American Cyanamid since last year. Oblagrochim receives products from American Cyanamid (only direct transactions) through the bonded warehouse in Uman. The chemical warehouse is located 70 km north-east of Odessa in the Kremidovka Silgospchimia area.

The chemical warehouse is located near a fertilizer warehouse (with a rail spur inside), on a two ha site. The chemical warehouse has a capacity of 500 tons with a floor area of 1,485 sq m. At present it holds 18 tons of crop protection chemicals. It is not known if the warehouse has been inspected or is in compliance with the laws governing the environmental protection policies

of Ukraine. The general cleanliness inside and outside leaves much to be desired. The floor inside was porous, made from cement and covered with a thick layer of mud.

(4) SPECIAL CONCERNS of USAID

4.1 Pesticides

This section is presented in an abbreviated form because USAID funds were not used for the procurement of the pesticides listed in this report. However, USAID has requested that this section be included in the EA. American Cyanamid lists nine pesticides used in its distribution network. All of the pesticides listed in Table 4 subsequently have passed through that country's testing and registration process. Toxicity information for Arsenal was not available at the time of writing this EA, but will be procured at a later time as soon as possible. Because American Cyanamid is involved in partnerships with Ukrainian businesses and foreign companies also storing agrochemicals in the same warehouses, it is not possible to consider the entire package of pesticides in all of the warehouses. Nevertheless, the same principles for safe management apply at all warehouses.

Table 4: Technical Specifications of Pesticides for American Cyanamid Project

Product Name	EPA Registration	EPA Toxicity Category				Personal Protective	Environmental Indicators				
		Oral	Inhalation	Dermal	Eye		Fish LC50	Bird LD50	Leaching	Absorption	Carcinogenicity
Acrobat MC (fungicide) (Dimethomorph & copper)	Conditional Use	III	I	III	IV	II	T	ST	M	S	
Arsenal Herbicide (Imathaper)		III	I	III							
Pivot (herbicide) (Imazethapyt)	Conditional Use	IV	I	III	IV	II	ST	PNT			
Saprol (fungicide) (Trifirine)	Conditional Use	IV	IV	III	III	III	ST	ST			
Stomp (Prowl)	Conditional Use	III		III	III	III	HT		S	L	
Fastac (Alpha-cypermethrin)	Not registered in the USA	II		III		II	T	LH			
Nomolt (insecticide) (Teflubenzuron)	Conditional Use	IV	III	IV	III	III	PNT	PNT			
Delan (fungicide) (Dithianon)	Conditional Use	III	III	III	III	II	PNT	PNT		M	
Storm (rodenticide) (Flocoumafen)	Conditional Use	I	I	I	IV	I		PNT			

Two other pesticide such as Atstek and Tork are in the process of registration in Ukraine.

1. Toxicity Rankings:
 - I. Danger e.g., oral LD50 <50 mg/kg
 - II. Warning e.g., oral LD50 - 500 mg/kg
 - III. Caution e.g., oral LD50 500-5000 mg/kg
 - IV. Caution e.g., oral LD50 >5000 mg/kg
2. Personal Protective Equipment and Clothing
 - I. Coveralls, long-sleeve shirt, chemical resistant footwear, gloves, respiratory protection, protective eye wear
 - II. Coveralls, short-sleeve shirt, chemical resistant footwear, gloves, respiratory protection, protective eye wear
 - III. Long-sleeve shirt and long pants, socks and shoes, chemical resistant gloves
 - IV. Long-sleeve shirt and long pants, socks and shoes, chemical resistant gloves
3. VHT Very Highly Toxic
 HT Highly Toxic
 T Toxic
 MT Moderately Toxic
 ST Slightly Toxic
 PNT Practically Non-Toxic
4. L Large
 M Medium
 S Small
 ES Extra Small
 E Reasonable estimate from range of values Source: Adapted from Farm Chemical Handbook, 1995

4.2 Expansion

As business expansion occurs in the distribution network of American Cyanamid and its new partners, additional warehouses will be added to the complex. American Cyanamid will describe the environmental details of them in its quarterly reports.

4.3 Scope of AID Funded Activities

Table 5. Cost Sharing Summary Over the Life of the Project

Project Budget Summary	AID	Company	LOP Total
1. Direct Labor	\$102,952	\$1,134,506	\$1,237,458
2. Fringe Benefits	42,210	205,426	\$247,636
3. Supplies and Equipment	48,000	79,000	\$127,000
4. Travel and Per Diem	60,000	420,000	\$480,000
5. Other Direct Costs	246,000	2,944,980	\$3,190,980
Total	\$499,162	\$4,783,912	\$5,283,074
% of Total Budget	9.4%	90.6%	100%

(5) AFFECTED ENVIRONMENT

Map 1 illustrates the locations of 15 of the warehouses in the network.

Geographical locations are:

Ukraine

Donetsk

Zaporozhje

Lviv

Khmelnitskiy

Odessa

Kievo

Rovno

Nikolaev

Cherkasy

Kherson

Simferopol'

Vinnitsa

Moldova

Chisinau

Belarussia

Minsk

All the warehouses are located in agricultural areas. They are far from any human living area and are at least 2-5 km from any streams. There are 15 Cyanamid warehouses in Ukraine, Moldova and Belarus. It is impossible to mention the physical and biological environment for all of these places. We recommend that you read our other environmental assessments in the Ap-1 and AP-2 projects for this information.

(6) AIR EMISSIONS and NOISE LEVELS

6.1 Air Quality

In areas where chemicals are stored and handled, the potential for spills and leaks that rapidly deteriorate air quality in a closed environment must be addressed. The ventilation system in the warehouse must meet US standards for worker protection. Odors of pesticides sere

apparent in all warehouses visited, and is severe in several of them. Due to their isolation, the warehouses pose no threat to air quality during normal operations.

6.2 Noise

Noise is not considered to be excessive in any of the areas as a function of the project.

(7) TRANSPORTATION IMPACTS

No adverse impacts due to transportation are expected. In general the condition of railroads is adequate and most roads are safe, although occasionally a bad access road is encountered. Truckers hauling agrochemicals must be trained in extra safety precautions necessary in transporting hazardous loads.

(8) AESTHETICS and VISUAL QUALITY

Does not apply to the project due to the isolation of the warehouses from settled areas.

(9) IMPACTS on WATER, POWER and WASTE DISPOSAL

The consequences of fires at chemical warehouses pose a particular threat to the local water uptake system, as runoff from water used to extinguish the fire could transport chemicals into the water table. This concern should be covered by the Emergency Preparedness Plans of each individual warehouse. Entrapment canals without exits need to be constructed to prevent the run off of spills from warehouse activity over the years. Preferably these canals should be lined with impervious materials. Emergency spill traps should be installed such as exists at the Vitol, Chisinau warehouse.

(10) PUBLIC HEALTH and SAFETY

Public safety and health are of vital importance in regards to possible contamination of ground water due to the spillage of chemicals. Correct storage and use of fertilizers and pesticides is also a top priority. These should both be covered under the Emergency Preparedness Plan. Security at the warehouses currently includes a night guard and/or high fences surrounding the site.

(11) ENVIRONMENTAL CONSEQUENCES

11.1 Agrochemical Impacts

USAID's policies on pesticides provide a framework within which to assess the status of agricultural chemical management in Ukraine. USAID's pesticide policies are summarized in the following excerpt from *AID Policy Paper: Environment and Natural Resources (1988)*:

"Also essential to environmentally sound and sustainable agriculture is the proper application, storage, and disposal of agricultural chemicals. A.I.D. policy is to support more natural pest control efforts through integrated pest management efforts to; a) reduce the use of chemical pesticides to the fullest extent practicable; b) use only those pesticides which are safest to the environment and people; c) discourage general requests for pesticides, and assure that pesticides are used with natural control programs; d) develop infrastructures in developing countries for all aspects of proper pest and pesticide management, including regulation of manufacturing, labeling, distribution, work and public exposure levels, application, storage, and disposal; e) communicate U.S. policies and experience on pest control and pesticide problems to other nations and international organization; and f) promote the use of supplementary or alternative methods of vector control which are not dependent on the use of toxic chemicals."

(12) LIST OF PREPARERS

The Initial Environmental Evaluation for the American Cyanamid dated January 24, 1997 was written by Keith Drazek, CNFA and Ken Lyvers USAID/Kiev with a Positive Determination. IEE was approved by the Director of USAID and ENI Environmental Coordinator March 4, 1997. A Scope of Work (Appendix A) was written by Mark Mitchell former CNFA Environmental Advisor. The environmental office staff of CNFA headed by Dr. Wayne Williams wrote the Environmental Assessment. Dr. Williams is currently the Environmental Officer for Citizens Network for Foreign Affairs projects in Kiev, Ukraine. He has extensive experience in the Environmental Assessment field, successfully completing several dozen Environmental Assessments for USAID in Central America from 1991 through 1995 in his capacity as Regional Environmental Advisor for USAID/ROCAP in Guatemala. These and other Environmental Assessments completed by Dr. Williams covered the widest possible range of topics including agricultural projects, pesticide and fertilizer management, construction of medical clinics, solid and liquid waste disposal, public health and other projects including large and medium sized industrial operations, including electrical power generating plants. Dr. Williams has designed, built and supervised several technical laboratories. He has conducted extensive agricultural research on plant nutrition with macro and micro nutrients. Lena Lopantseva, Environmental Assistant for Citizens Network for Foreign Affairs projects in Kiev, Ukraine. Lena Lopantseva has a Masters Degree in Physics with a Minor in Science Education. She is an Environmental Technician for CNFA. Jo Anne Williams holds a Bachelor's degree in Environmental Studies and Planning from Sonoma State University, California and has had extensive experience in writing and editing technical and scientific manuscripts. She is on contract to the CNFA Environmental office.

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(14) APPENDICES

- A. Initial Environmental Evaluation
- B. Scope of Work for EA
- C. Photo Album of Site
- D. Site Locations Map
- E. Questionnaires for Pesticide Warehouses